A FOREST TENURE SYSTEM FOR YUKON

by
Colin Heartwell

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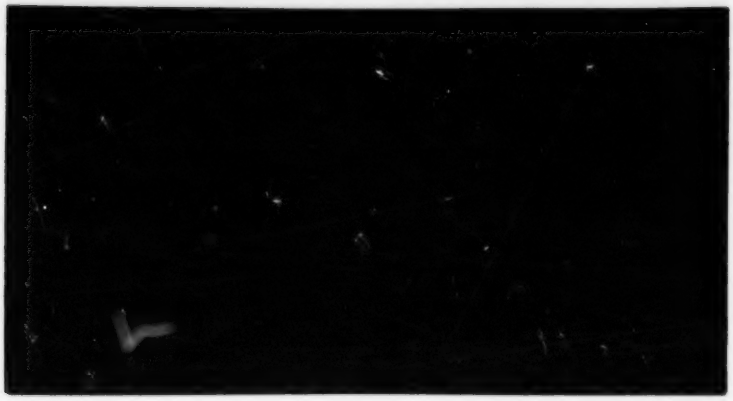

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Colin Heartwell

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In order to obtain a more complete understanding of the opportunities and constraints to the development of Yukon's forest industry, the governments of Canada and Yukon signed a special agreement in October, 1986. The Yukon Departments of Renewable Resources and Economic Development: Mines and Small Business, Indian and Northern Affairs Canada and the Canadian Forestry Service agreed to finance an eighteen month series of studies on Yukon's forest industry. This work was also supported by the Yukon Forest Industry Association.

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Abstract

An appropriate system of forest property rights (tenure arrangements), is one of the most powerful tools that governments in the Yukon have for ensuring effective forest management. This paper discusses the concept of property rights, and the role that tenure systems play across Canada and in Alaska, and evaluates the impact of governments' goals and objectives on the tenure system.

The paper describes the nine basic elements that are incorporated in each of the forty-five major tenure systems reviewed. The study groups this menagerie of tenure systems into three forms, namely: forest management agreements, forest licences, and timber permits.

The Yukon's tenure system is outlined and evaluated. Although the Yukon system adequately accommodates forest management agreements and timber permits, it fails to provide forest licences. These licences are considered essential to providing reasonable tenure arrangements for small-and intermediate sized-firms.

Three alternative tenure systems are postulated, including: status quo, timber contracts, and a three-tiered tenure system. The strengths and weaknesses of each option are discussed and the development of standardized timber harvesting agreements is suggested. These timber harvesting agreements could ensure support for small operators as an interim measure prior to the transfer of forest management responsibility from Ottawa to the Yukon Government.

Résumé

Une système approprié de droit de propriété forestière (systèmes de tenure) est l'un des meilleurs outils dont disposent les gouvernements du Yukon pour assurer un bon aménagement forestier. Ce rapport traite du concept du droit de propriété et du rôle que jouent les systèmes de tenure au Canada et en Alaska; il évalue l'incidence que les buts et objectifs des gouvernements ont sur le système de tenure

Le rappport décrit les neuf éléments qui font partie intégrante de chacun des quarante-cinq principaux systemes de tenure examinés. Il répartit cette pléiade de systèmes de tenure en trois grandes catégories : ententes relatives a l'aménagement forestir, permis d'exploitation forestière et permis de coupe de bois

Le rapport décrit et évalue le système de tenure en usage au Yukon. Bien que le système de ce territoire admette facilement les ententes d'aménagement forestier et les permis de coupe, il ne prévoit pas la délivrance de permis d'exploitation forestière. Or, ceux-ci sont considérés comme essentiels si l'on veut faire bénéficier les petites et moyennes entreprises d'un système de tenure satisfaisant

Trois systèmes de tenure sont possibles : le systéme actuellement en vigueur, les contrats forestiers et un système à trois niveaux. Le rapport examine les avantages et les inconvénients de chacune de ces options et propose la création d'entntes uniformisées pour la récolte du bois. Les petits exploitants bénéficieraient de ces accords en attendant que les responsabilités de l'aménagement forestier soient transférées du gouvernement d'Ottawa à celui du Yukon.

Executive Summary

An appropriate system of forest property rights (tenure arrangements), is a most powerful tool that government has for ensuring effective forest management. The Yukon Forest Industry considers their present tenure system to be a major constraint to forest resource development in the Yukon.

The purpose of this paper, is to investigate the rationale behind the present forest tenure systems in use across Canada and Alaska, to describe the major elements of each of the tenure arrangements, and to outline a set of tenure systems that might be followed in the Yukon.

The second section discusses property rights and the role of tenure systems in forest management. Governments throughout Canada (the Crown), have chosen to retain ownership of the forest resource, but have depended almost exclusively on the private sector to develop and use those resources. To reconcile public ownership with private utilization, the Crown has developed a diverse system of granting property rights to users of the resources. Therefore, forest tenure systems are organized methods for allocating a portion of the Crown's property right to the private sector in exchange for resource rents and for compliance with certain forest management terms and conditions.

The reasons why the policy of the Crown shifted from private ownership of forest resources to public ownership since Confederation is unclear, but many authors postulate that it was due to a fear of resource domination by large national or multinational companies and from simple market failures. These market failures prevented the efficient allocation of the forest resources in a manner that was good for all citizens in the country and, consequently, the Crown intervened to control the allocation.

Since the Crown owns the forest resource, its goals and objectives become important elements as they set out the unique policy frameworks that guide the diverse series of tenure arrangements, each conveying a different bundle of property rights to the resource users. Few jurisdictions appear to place a high priority on economic efficiency, such as a revenue maximization and industry efficiency, while equity goals, such as multiple use and forest conservation, are considered far more important by most provinces. Stability goals, particularly sustained yield harvesting, is practiced by all jurisdictions and appear to be the biggest concern of governments.

The Yukon's forest resource goals and objectives are broadly stated to "manage the forest for the long term social, economic and environmental benefit of Yukoners." This goal, however, is not sufficiently precise to provide the direction needed to distribute property rights in the territory. The first priority of governments in the Territory, therefore, must be to develop a clear and specific statement that sets out a position with respect to efficiency, equity and stability. This position statement will be the framework for effective implementation of any new forest management policy. The goals and objectives of the Alaska, Nova Scotia, and Alberta governments best parallel those outlined in the Yukon, and provide a good reference point for future Yukon forest policy.

Section 3 defines the elements that are common to all tenure systems and then applies these elements to the existing systems. In summary, there are nine major elements of property rights that can be applied to each forest tenure system. These are:

- comprehensiveness and exclusiveness
- duration
- transferability
- rights of holder to economic benefits
- operational stipulations
- use restrictions and multiple land use
- size specification
- allocation type
- allocation mechanism

These elements provide the sticks, the combination of which will determine the bundle of property rights that can be enjoyed by private firms under any tenure system. In addition, the settlement of the Yukon Indian land claims will impact on any proposed tenure system as the Indian people are expected to gain control over a significant portion of the Yukon's forest lands.

Across Canada, there are forty-two major tenure systems used to grant property rights to forest operators. In addition, there are three tenure systems used to allocate resources in Alaska. While there appears to be a spectrum of tenure systems ranging from the comprehensive freehold, to the non-exclusive common property rights, a clear pattern does emerge.

The entire menagerie of forest tenure systems can be grouped into three forms of tenure, namely; forest management agreements, forest licences, and timber permits. Forest management agreements are long-term agreements (20-25 years), negotiated between a resource user willing to make major capital investments. The agreements usually grant fairly extensive property rights in exchange for undertaking major forest management activities.

Forest licences are generally competitively tendered granting a limited set of property rights over a shorter time period (5-10 years). Also, the firms receiving forest licences make smaller investments and the Crown generally retains a larger portion of the forest management responsibilities. Resource users tend to directly pay for a portion of the forest management through fees and royalty payments. Finally, timber permits tend to be very short-term (1-5 years), application-based tenures granting individuals or firms very limited and site specific property rights. Under the timber permit, the Crown assumes all responsibilities for forest management.

Any forest tenure system in the Yukon will likely incorporate these three major elements of forest tenure, but as indicated earlier, the forest management goals and objectives developed by government will tend to modify and direct the way in which these general tenure arrangements are implemented.

In section 4, the paper outlines the Yukon's forest tenure system and provides three alternative tenure arrangements that could be followed in the Yukon. The Yukon's forest tenure system is covered under the federal Territorial Lands Act[1] and generally grants tenure through timber cutting permits and timber harvesting agreements.

The timber cutting permits tend to parallel the short term tenure arrangements of the timber permits while the timber harvesting agreements tended to parallel the large scale forest management agreements negotiated in the provinces. This leaves Yukon without an intermediate tenure arrangement similar to the forest licence which can accommodate the majority of the smaller forest companies operating in the territory. MacTavish and Dendron Resource Surveys Ltd. (1982) in a study of forest management in the Yukon suggested that the existing timber harvesting agreement mechanism be modified to allow for negotiating agreements that would be similar in content to the forest licence while also retaining the broader based forest management agreement.

Three alternative forest tenure systems were suggested in section 4 to deal with the Yukon's tenure requirements, namely: status quo, timber contracts and the three-tiered tenure system. The status quo was considered to be an interim measure that uses the existing legislation and regulation, but establishes two or three categories of standard timber harvesting agreements. These standard agreements would be patterned after the three types of tenure arrangements in the provinces and would be applied to firms depending upon their size and operating capabilities.

Timber contracts could also be developed, based upon the Alaska legislation. These timber contracts would be signed agreements between the Crown and the resource user granting access to the forest resources in exchange for undertaking certain forest management activities. Under the Alaska system, timber would be sold to commercial concerns under a legal contract, enforceable through legislation. The property rights would be allocated by auction and the contract would include a variety of forest management provisions.

Finally, the Crown could develop a three-tiered tenure system based on the pattern in most other jurisdictions, with the forest management agreement for larger firms, the forest licence for smaller firms and the timber permit for very specific forest harvesting. This would provide the Yukon with a system that is comparable to other regions, but would require the passage of specific legislation. Implementation of this arrangement would likely have to wait until transfer of responsibility for forest resources to the Yukon Government is complete.

In the conclusion, the need for the Crown to develop forest management goals and objectives is reiterated. As well, both levels of government are encouraged to consider using the existing provisions of the Territorial Lands Act to negotiate standard timber harvesting agreements with smaller firms as well as large firms like Hyland Forest Products.

In the longer term, governments should consider a move to either the Alaska system of timber sales contracts or the more standard three-tiered tenure arrangement being implemented across Canada. The final system must accommodate the Indian land claims agreement containing appropriate management arrangements to include the Crown, the Indian people, and the resource user.

1.0 Introduction

Yukon's forests cover more than 242 000 square kilometres of the territory's land surface and are significant to the development of a broad range of land-based resources. In addition to forest harvesting, the forests also contribute to the supply and production of forage, water, fish and wildlife habitat, recreation, subsistence activities and a wide range of other complementary and conflicting uses.

Forest management in the Yukon, therefore, must be involved in regulating the use of forest resources in order to establish a long-term balance between harvesting and forest growth while attempting to reconcile competing demands. Forest management can readily be divided into seven major elements: harvesting rates, forest protection (fire, pests), property rights (tenure), crown revenues (stumpage and other fees), forest utilization rules (harvesting methods, cleanup, scarification), reforestation and silviculture, and research. These elements in turn are directed by the resource management goals and forest policy objectives established by the government, in its capacity as the resource owner.

As part of the process of shifting ownership of the forest resource from the Federal to the Territorial government, the various aspects of forest management are being reviewed and discussed. An appropriate system of forest property rights (tenure arrangements), is one of the most powerful tools that government has to ensure effective forest management. It is also the one factor constantly being raised by many interested parties as a serious obstacle to forest resource development in the Yukon.

The purpose of this paper is to investigate the rationale behind the present forest tenure systems across Canada and Alaska, to describe the major elements of the various types of forest tenure arrangements in these jurisdictions, and to provide a set of alternative tenure systems that could be pursued for the Yukon.

No effort will be made to suggest an appropriate tenure method as tenure arrangements are directly related to the specific forest management goals of the Crown, as resource owner. The report, nonetheless, hopes to provide information about the characteristics of alternative tenure arrangements that will allow decision makers in the Yukon and Federal Governments to make informed choices about the appropriate tenure system for the territory.

This section introduces the purpose for the report and sets the stage for the second section which defines property rights, the rationale for government establishing these rights, and the role of property rights as a public policy tool in developing forest resources. The third section provides a summary of the elements of forest tenure across the country and includes a discussion of the importance of each of the major components of tenure systems. Finally, the last section outlines several tenure options that government in the Yukon can pursue as part of a forest management program for the territory.

2.0 Property rights and the role of forest tenure systems

Throughout Canada, and in many nations around the world, governments have chosen to retain ownership of forest resources rather than transferring that ownership to the private sector. For Canada as a whole, only 6 percent of the more than 342 million hectares of forest land is privately owned. On the other hand, government has depended almost exclusively on private enterprise to develop and use these resources.

To reconcile public ownership with private utilization, federal and provincial governments have created a diverse system of granting rights. Ranging from freehold title to temporary licences and permits, these property rights or forest tenures provide private users with access to the Crown's forest resources.

These property rights are crucial instruments of public policy because they govern the way that resources are used and managed. These rights have profound consequences for both the distribution of the benefits from natural resources, and for the economic performance of the industries dependent upon them. Accordingly, the composition and methods of distributing these rights are key components of forest management policy.

To help determine the appropriate form of property rights for the Yukon, it is important to understand the meaning of the term and how it has been applied by federal and provincial governments in North America. In addition, it is important to understand that resource goals and objectives will significantly impact the type of property rights that are granted to the resource user.

2.1 What are property rights?

Forest tenure systems across North America are simply organized methods for allocating a portion of the government's property rights to the private sector in exchange for resource rents and for compliance with certain forest management terms and conditions.

Fischer (1923), defined property rights as "the liberty or permit to enjoy benefits of wealth while assuming the costs which these benefits entail". Crane (1980),

defined property rights as "the legal right to possess and use economic goods and to derive both present and future benefits from such use".

These rights determine who gains from, and who bears the costs of economic transactions,and to what extent. These rights can be exchanged and their value depends upon the privileges that accompany the property, and the social regulations that govern and constrain the ownership of that property. Pearse (1987b) indicated that, "it is useful to think of property rights as a spectrum, ranging in duration, comprehensiveness and exclusiveness. In law, property refers not so much to tangible things as a bundle of rights, which is bigger or smaller depending upon how complete the holders rights are in these various dimensions"[1].

At the one extreme, the property holder's rights are most complete under the traditional fee simple or freehold where they are exclusive to the owner, comprehensive with respect to the attributes of the land, of infinite duration, divisible, and transferable without restriction. Land granted to the Canadian Pacific Railway in the 1860s which contained the full range of rights under traditional common law including unrestricted rights to use the surface of the land, whatever lay beneath the surface, the water and timber on it, the wildlife. At the other extreme, there is unrestricted common property where property rights, by definition, do not exist and anyone is free to use the land in any manner they desire. The five-mile coastal zone along the Newfoundland coast, where any citizen was traditionally free to harvest any quantity of timber, without restriction, is an example of common property.

Neither extreme of this property-rights continuum is common in North America. Property rights are normally granted in some form to most types of property but usually they are neither comprehensive nor without conditions on duration, divisibility, or transferability[2].

In this context, the distinction between public and private ownership is difficult to distinguish. Citizens owning land in fee simple title, often do not control all the rights to resources (eg. mineral rights or water rights), on their property, and conditions are often placed on transferability and divisibility (eg. zoning bylaws, environmental regulations, etc). Governments maintain control over all the resources held on their land and they can exclude others from using it and dispose of the property rights as they see fit.

In the Yukon, the primary resource owner is the federal government, controlling more than 99% of the forest land. The territorial government and private land owners control the remaining portion of the forest resource. However, once land claims are signed, the Indian people are expected to have fee simple title to a substantial portion of the Yukon's forest lands, presenting decision makers with a more complicated property rights situation, similar to that in Nova Scotia.

2.2 Why does government choose to hold a part or all of these forest resource property rights?

In the first half-century following confederation, Canadian governments followed the established tradition of granting to firms, the full range of rights under traditional English common law, for all natural resources, including forests. During this period most of the non-agricultural land and resources in the Atlantic provinces were placed in private hands, and the CPR received its all encompassing property rights in exchange for railway construction.

However, in the early 1900s governments began to move away from the policy of encouraging private property rights for resource land towards a policy of public resource ownership. With the exception of agricultural land, governments began retaining ownership of natural resources and granting rights to operators in the form of leases, licenses, and permits.

Pearse (1987a) indicated that the reason for government intervention in forest resources was somewhat unclear, but postulated that it was the result of a growing populist reaction in the early 20th century (Conservation Movement). The movement feared that the alienation of large tracts of land in Western Canada by land speculators would deplete the resource base and be detrimental to future generations. Public ownership was also apparently seen by politicians as a means for government to obtain a better financial return from natural resources than would be the case from selling it outright.

In more recent years the rationale for public ownership has dealt with the questions of protecting the resource for the public good and controlling any socially harmful impacts of development. A 1984 Economic Council of Canada (ECC) publication called Western Transition (Economic Council of Canada 1984) indicated that the need for public sector ownership could be summed up as simple market failure.

The ECC contended that for the forest resource, market prices that influence the decisions of individuals and firms fail to adequately reflect the true benefits and costs to society. The market failures occur from three sources, namely: the failure of prices to include the wide variety of non-market benefits generated by the forest resources (eg. wildlife, recreation, and subsistence activities); the belief that, due to capital market imperfections and the short term time horizons of the private sector

investor, there is a tendency for firms to invest less than is socially desirable in the forest resource; and the feeling that private firms fail to give sufficient weight to the social costs of community development and regional stability created by the forest industry.

In response to these various concerns about private control over resources, various governments have responded over the years by gradually assuming direct public ownership of the resources. While most of the forest land in Nova Scotia and PEI is privately held, the degree of private resource ownership declines rapidly as you move West. In British Columbia, private ownership is insignificant, and in the North, as indicated, it is almost non-existent. Moreover, the more recent the Crown grants, the less comprehensive were the rights conveyed. Over the years, government progressively chipped away at the bundle of rights associated with land ownership under common law.

Despite this overwhelming commitment by Canadian citizens to public ownership of forest resources, there is an equal commitment for the private sector to utilize them. Virtually all of the timber harvesting and forest products manufacturing is being conducted by the private sector. The government, therefore plays the role of landlord, while the private sector becomes the property holder and is allowed to use the resource subject to all the usual market incentives. In this context, the system of property rights is critical and consequently, forest tenure arrangements have become the major instrument for implementing public forest policy in Canada.

2.3 What impacts do government's resource management goals have on the composition of forest tenure arrangements?

Not surprisingly, the simple answer is that a government's forest management goals and objectives are directly linked to the type of forest tenure arrangements that are granted to private firms. As governments across Canada continue to grapple with the often conflicting goals of efficiency, equity, and stability in developing the forest resource, their unique policy frameworks set out a series of tenure arrangements, each conveying a different bundle of property rights to the resource user.

In 1985, the Sterling Wood Group Inc. conducted a comparative analysis of the forest policies and attendant tenure systems in each of the Canadian provinces. Table 1 summarizes the forest management goals based upon the efficiency, equity, and stability criteria[3]. The table also summarizes the forest management policies of Alaska, NWT, and the Yukon as obtained from other sources. Few governments place economic efficiency as a high priority. Only three provinces: British Columbia, Manitoba, and New Brunswick, and the state of Alaska believe that maximizing net revenues is a key forest management goal. Alberta and Nova Scotia join British Columbia in placing emphasis on an efficient forest industry, while only four provinces – Manitoba, Nova Scotia, Newfoundland, and Saskatchewan stress efficient forest management.

Equity objectives do, however, appear to be very important to all governments. Alaska and half of the provinces have explicit goals that stress the multiple-use nature of the forests and the need to ensure that all competing users are fairly treated. Moreover, an increasing number of governments are recognizing the multiple-use nature of forest lands and declaring this goal to be a major consideration in any forest management decision. The conservation and protection of forest lands, in order to provide opportunities for future generations, is also a major goal of the majority of governments.

Economic stability, particularly stability of employment and income on a regional basis, appears to be another major component of forest management policy across Canada. Almost every government announces sustained yield as an explicit goal, and in some cases, state it is the primary goal. The principle of harvesting the forest resource in such a manner as to ensure a perpetual rated cutting, is pursued in the belief that the policy will lead to a steady and stable production level and corresponding by stable economy.

Finally, several provinces pursue goals that attempt to maximize the utilization of the timber resources on the theory that waste of any component of the forest resource, regardless of economic worth, is undesirable. Such a goal, although conservation by nature, has had significant impacts on the forest industry in Canada and is, therefore, included separately.

Special goals are also outlined in Table 1 for several provinces reflecting their unique characteristics. The majority of these special items demonstrate a desire of government to ensure equitable development across the political jurisdiction and to conserve the resource base.

In the Northwest Territories, the territorial government assumed authority for forests on April 1, 1987 and has not yet developed a comprehensive forest management policy. However, on the basis of available studies, the goals of the N.W.T. government are to pursue multiple use and resource conservation as their top priorities. As well, the equity principles are enunciated by recommendations for community ownership of part of the forest resource, support for small scale forest processing, and emphasis on forest harvesting to meet local needs.

Economic efficiency criteria such as industrial efficiency, resource revenue maximization, and efficient forest

management, on the other hand, appear to be less important, and harvesting policies such as sustained yield are considered to be premature at the present level of forest activity.

In the Yukon, forest management goals appear to be less clear. The Yukon Government green paper, The Future of Yukon's Renewable Resources (Yukon Department of Renewable Resources 1985), proposed its forestry goal "to manage the forests for the long term social, economic, and environmental benefit of Yukoners"[4]. The federal government, which is the present forest resource owner in the Yukon, has goals of "stimulating economic development and employment, protection of the environment, acceptable standards of aesthetic (forest resource) qualities, enhancement of the northern environment and sustained supply of wood for local residents and local markets"[5].

The theme of these Yukon goals appears to favor equity and stability criteria, including: developing a forest management system, having a multiple use approach to forest development, and giving a priority to a forest industry based on small community businesses rather than large firms. Increasing resource revenues appears to be considered desirable, but the size of the potential revenue base is not considered large, and hence, there is no overriding public concern with maximizing revenues. Other goals, such as industrial efficiency and efficient forest management, do not appear to be high priorities.

On the other hand, there have recently been concerns expressed about forest management policy. The Yukon government's purchase and recapitalization of Hyland Forest Products mill in Watson Lake has raised concerns about timber supply, and industrial development of the forest industry. The application by Makin Pulp and Paper for a permit to export pulp chips has raised concerns about timber utilization, intensive versus extensive forest management, protection of alternative forest uses, and environmental protection. Also, the log export permit received by Dachin Degeh has raised concerns about further processing requirements.

The precise management goals that could drive a new forest tenure system, do not appear to be in place in the Yukon, and the first priority of governments in the territory, therefore, must be to develop clear and specific statements that will provide a framework for the effective implementation of any new forest management policy. On the basis of this research, the policies set out in Alberta, Nova Scotia, and Alaska appear to come closest to the known ideals for forest resource development in the Yukon. They also provide a good reference point for a future Yukon forest policy.

3.0 Tenure arrangements across Canada and Alaska

As one looks across Canada and Alaska, it is clear that there are as many different forest land tenure systems as there are jurisdictions. Each jurisdiction has developed a tenure system for the allocation of property rights that is tailored to the unique geographical, historical, political, and social characteristics of the area. Each permits private sector access to the forest resource through a variety of licensing arrangements, differing in the rights and responsibilities they convey, their duration, and the charges that are imposed by the Crown to obtain a reasonable revenue from their resource. Moreover, they are systems that flow from the forest policy direction that were influenced by those characteristics.

The purpose of this section is to attempt to define the basic common elements that underlie all forest tenure systems, to relate those elements to the existing tenure systems across Canada and in Alaska, to outline the common threads running through these systems that might be applied to the Yukon, and to discuss how changes to one element will influence the choice of tenure system.

3.1 The elements of tenure systems

Very little comparative research has been done regarding the allocation of property rights on forest lands, but a few authors have provided information on the characteristics of property rights as they affect the forest resource. (Pearse 1976, 1985, 1987b; Haley 1984; Haley and Luckert 1986; Rawat, 1985)[6].

There are nine major elements of property rights that can be applied to each forest tenure system. These are:

- comprehensiveness and exclusiveness
- duration
- transferability
- rights of holder to economic benefits
- operational stipulations
- use restrictions and multiple land-use
- size specification
- allocation type (volume/area)
- allocation mechanism (auction, application, negotiation)

In addition to these elements, there is a need to discuss the impact that Yukon's Indian land claims will have on possible tenure systems.

Comprehensiveness deals with the degree of control over the resource that is held by the property rights holder. Exclusiveness deals with the rights of the property owner to prevent others from enjoying the benefits of the asset.

Comprehensiveness sets the limits of the control, defining for the resource user their rights to harvest (i.e. species, types, and sizes of trees; green, dead, or firekilled materials). It usually includes discussion of their right to construct infrastructure on the land and the influence of other resources, such as rivers and habitat areas, and their impact on harvest. Today, forest companies seldom get control over subsurface rights or other market-based resources. They may or may not be given control over non-market-based activities such as water, recreation, and wildlife on their property.

Exclusiveness refers to the rights of the resource user on forest lands to prevent others from gaining benefits from the forest resource. The more the resource user can control access for alternative uses like recreation, subsistence activities (hunting, fishing, farming, grazing), non-renewable resource development, and wildlife activities, the greater the exclusivity that exists. Some tenure systems restrict the forest resource user to harvesting timber while other systems allow the resource user to control other uses in the region such as water, recreation, and hunting.

Comprehensiveness and exclusiveness are key concepts in designing systems for dispersing property rights or tenure. These factors define the traditional concept of ownership. Without these elements, property rights are of very little value. Comprehensiveness and exclusiveness gives the resource user the incentive to become responsible for the resource rights that have been granted. For example, a forest holder who is granted rights to timber for harvesting and recreation purposes is responsible for managing the forests for their timber value and their recreation value and must, therefore, ensure that his management regime integrates both. Where the resource users' rights are most comprehensive and exclusive, as in privately owned agricultural land, users generally allocate their resources in the most advantageous way. Their rights being exclusive, they produce to meet their management objectives with minimal interference from others. They have full responsibility for managing their resources with relatively little government interference. On the other hand, the complete absence of exclusiveness and existance of common property, as in the coastal zone in Newfoundland, often lead to dramatic over-utilization of the existing timber, resource depletion, and dissipation of the potential economic benefits.

Duration refers to the period of time the resource user retains control over the allocated forest resource. This can range from less than one year, to an indefinite period. In the forest industry, the resource user would ideally prefer to hold the resource for at least an entire rotation period being, thereby, assured of harvesting the new timber crop for which he was responsible. Consequently, any shorter duration encourages firms to invest less in forest management than they would otherwise and to attempt to obtain revenues as quickly as possible. The shorter duration also creates uncertainty amongst resource users and undermines the ability of firms to justify investment in forestry.

On the other hand, the Crown recognizes there can be significant changes in the entire forest resource base over the term of a forest cycle and prefers to use shorter durations to maintain decision making flexibility and allow for their direct involvement in forest management. Moreover, it allows the Crown to assess the resource users' performance and adjust the management controls according to that performance.

Despite the concerns about duration, the Crown does tend to increase the duration of property rights as the size of the investment increases. The Crown recognizes that large scale investments in plant and equipment require a more generous time allocation.

Transferability refers to the degree of freedom that the resource user has to sell or otherwise dispose of their lease property. Transferability would theoretically allow the market to direct the forest resource to its most valuable use. In this way the forest property holders can make gains from comparative advantage, specialization, and economies of large scale operations. As well, the forest resources can be transferred between uses to adapt to changes in, among other things, tastes, technology, and income.

Restrictions on transferability can seriously affect investment decisions which have long time horizons, and these restrictions tend to reduce the value of resources. If there are few restrictions on the rights of resource users to transfer their property rights to another person or firm, these resource users will be encouraged to make investments in reforestation despite the long rotation periods. With no barriers to selling immature forest stands, they will be more likely to invest knowing they can expect to make a profitable return on their investment.

Conversely, if there are restrictions on the transferability of the resource, there will be only limited incentive to invest in reforestation. Individuals and firms will face the prospects of very high risk on the investment in a product that will not mature for decades and for which they have little chance to earn income during the intervening period.

Restrictions of transferability also reduce the value

of the resource. If firms cannot sell the rights to others to such activities as exporting logs, or if the rights can be transferred only if restrictions are met, such as the existing mills remaining open, this will tend to reduce the market value of the logs and standing timber and depress anticipated rates of return on timber production. This in turn, negatively affects the forest management decisions of the companies.

Restrictions in transferability are not always inappropriate. Certain rights to restrict transferability are often retained by the Crown in order to reduce the potential of excessive concentration of timber rights in the hands of a few firms, to prevent or mitigate any community economic instability created by the transfer, and to maintain a suitable balance of ownership between local, regional, and international interests.

The right of the resource user to obtain economic benefits is simply the ability of the user to make financial returns or profits from the leased property. This ability for forest resource development is restricted by normal market place activities but is also restricted by the other financial costs imposed by government such as taxes, royalties or stumpage fees, land rents, user charges (fire protection, timber scaling), or rules or regulations that require the property holder to make certain types of expenditures in order to manage or maintain the resource in a certain manner. The total cost of these payments will directly affect the economic efficiency and investment behavior of the firm. If the costs are too high investment will be reduced, and if the costs are too low the Crown receives too little return from the resource.

Moreover, the manner in which the charges are levied on the resource owner can impact upon efficient use of the resource. Pearse (1976) showed that property taxes based upon a standard fee per acre, could have significantly negative impacts on investment, over fees based upon the productivity of the forests, because operators harvesting trees of lower quality and less value would end up paying too high a price, while those operators harvesting trees of high quality and value would be paying too low a price.

As well, stumpage payments levied on the basis of the logs harvested from the forest, or the lumber shipped from the yard, may encourage high grading, while stumpage fees levied on the basis of a unit area charge would encourage more complete utilization of the timber resource. (Nautiyal and Love 1971; Pearse 1976; Percy 1986).

There are operational stipulations on property rights including rules on how the property can be used, (eg. zoning restrictions), stipulations on forest management, such as reforestation standards, soil and water conservation measures, utilization standards, silviculture investments and research, requirements to build and operate certain types of processing facilities, or to bear the costs of infrastructure development and reforestation. These stipulations affect the behavior of the property holder by limiting the options available for use of the resources, increasing their business expenses to accommodate the regulatory control, reducing the property values, and limiting the potential returns to investment. For the Crown, these limits allow them the flexibility to address social benefits such as equity and stability.

There are also use restrictions and conditions regarding multiple use of the land which affect not only the exclusiveness and comprehensiveness of the control over forest lands, but also the ability of the rights holder to obtain economic benefits. Establishing parks, wildlife sanctuaries, and habitat zones along rivers are three examples of use restrictions that may be applied.

Governments often withhold the right to change the use of the land, either with or without financial compensation, and impose upon firms the necessity of accounting for the multiple use of the forests in all aspects of their operations, from planning, through harvesting, to cleanup and reforestation.

These activities often reduce the size of the land base available to firms and may prevent the forest resources from being fully used. Conversely, these restrictions allow the Crown to accommodate any externalities associated with forest development. The loss of certain non-market products such as wilderness, or wildlife habitat may have value that exceeds that of forest harvesting but presently have no market price.

There are size restrictions that limit the control that a single property holder may have over a particular forest area. The size restrictions often vary depending upon the nature of the processing activity and the amount of forest resource required to sustain a profitable operation. Pulp and paper operators, for example, require larger timber supplies than would be required for a sawmill used for personal use. The size restrictions also tend to vary in order to allow both small and large operators to have equal access to the forest resources and to ensure that there is a sufficient number of companies in the industry to promote competition amongst firms.

Ideally, the property should be sufficiently large to allow firms to attain their optimum efficiency, but not too large that local monopolies or monopsonies can be created. As well, there needs to be an adjustment to the land allotment to take into account any operational or use restrictions that exclude part of the resource.

Property rights on forest lands can be allocated in

different manners and using different mechanisms. They tend to be allocated either on the basis of granting a resource user the rights to harvest a certain volume of timber over a broad region, volume based, or the rights to harvest all the prescribed timber in a specific area, area based.

Property rights that are granted on a volume basis reduce the incentive for resource users to initiate forest management practices as they do not have control over the rights to harvest the new timber crop. Conversely area-based arrangements provide incentives for resource users to reinvest because they are entitled to exclusive harvesting rights on new crop. Area-based allotments also increase the degree of exclusiveness and certainty for firms which encourages increased forest investment and, consequently, improved forest management, while volume based allotments tend to do the opposite.

On the other hand, area-based allocation mechanisms often restrict government from allocating timber equitably amongst large and small users, and from establishing some form of reasonable process for gathering a fair financial return to the Crown as property owner. Volume-based allocations provide this greater flexibility and control but impose greater responsibility on the Crown to undertake the forest management.

Governments also use several types of allocation mechanisms to transfer control of property from the Crown to the private sector. These mechanisms include: competitive tendering, negotiation, and permits. All three of these mechanisms are utilized by governments, based on changing requirements. Competitive tendering is the preferred method of transferring rights as it will allow the government to obtain the greatest possible financial return from the forest lands that are tendered. Competing firms will pay to the Crown the largest sum possible after accounting for all expected costs, including a profit or return on their investment.

However, there are often times when there are too few firms competing, or the projects are too large to ensure that the Crown will obtain the types of economic returns or social returns that they desire. In these cases, government tends to negotiate with the potential property holder to obtain what they feel is the best possible arrangement.

As well, the Crown often grants rights to small land areas or for small timber volumes that do not justify the time and costs of competitive tenders. In these instances, permits are provided on a first-come first-served basis.

In the Yukon, there is the added element of Indian land claims which will have an impact upon property rights and the appropriate system for allocating those rights. To date, virtually all forest lands are held by the Crown. Government tenures must be geared to managing all forest lands.

Once the land claims are settled, the Indian bands will have the authority to manage forest resources on their settlement lands. It is envisaged that forest management on settlement and Crown lands will be co-ordinated through the development of forest management plans which will be developed on a regional or subregional basis. In conjunction with this, co-ordinated management procedures are to be established to ensure that Bands are consulted on the management, allocation, and protection of forests on Crown lands. The degree and manner of Band participation in Crown land management will vary between regions reflecting both forest resource values and the potential for conflict with other resource users.

Finally, there is the element of stability, certainty, and security that runs through the property rights issue. The investment and operating behavior of property owners can change dramatically if there are constant changes to the regulatory system that affect the various components of property rights. If factors such as duration, exclusiveness, operational restrictions, transferability and comprehensiveness change regularly, they create increased risk and tends to lead firms to reduce the amount and flow of investment, sometimes at rates that are far below that considered to be optimal from a social point of view.

In summary, the process for allocating property rights is not straight forward. The nine elements of property rights form a complex matrix that can be used to create an almost infinite variety of tenure systems. Moreover, each system creates impacts upon the various forest management goals outlined in the previous section and has implications for the type of forest tenure system citizens may wish to see in the Yukon.

3.2 Existing forest tenure systems

Across Canada there are forty-two major types of tenure used to grant property rights to forest operators. In addition, Alaska uses the timber sale contract process for allocating most timber. Commercial Timber Sales contracts govern commercial operations, Personal Use Fuelwood contracts deal with fuelwood harvesting wood for personal heating purposes, and the Personal Use Houselog contracts cover the acquisition of sawlogs for personal use in homebuilding. In order to assist in comparing the systems, Haley and Luckert (1986) summarized these forest tenure systems by each of the major elements of property rights and the results appear in Table 2.

As one looks from left to right across the table, it is clear that a spectrum of property rights does exist across the country, ranging in duration, comprehensiveness and

exclusiveness and restrictions, amongst other things. One of the unifying characteristics of the various tenure systems is that they transfer exclusive timber harvesting rights to their holders; with the single exception of the five mile coastal strip of Newfoundland, where timber can be cut on a common property basis.

Comprehensiveness as demonstrated through forest management responsibility appears to vary widely amongst the various jurisdictions. Forest management responsibilities are sometimes retained by the Crown, sometimes given to the tenure holder, and sometimes shared between the public and private sectors.

The spectrum of tenure systems, ranging from the comprehensive freehold to the non-exclusive common property rights of access, is thus paralleled by an increasing dependence on government to manage the resources and to regulate use. Generally, governments need not intervene much where they have established systems where rights are comprehensive, long term, exclusive, and transferable. But where rights are narrow, short term and exercised in common, market incentives cannot be relied upon. In those cases, governments assume greater responsibilities for managing the resources and protecting the users from each other. Thus there is a definite pattern emerging across jurisdictions, whereby tenure systems generally are categorized as large, medium, and small.

Large area tenures usually support large investments, for projects such as pulp mills or large integrated sawmills, which require long periods for capital amortization. These tenures involve agreements for terms of 25 years or more between the Crown and larger firms to carry out long term forest development. In exchange for the major investment, these firms are granted significant forest management responsibilities and exercise considerable freedom to manage the resources.

Medium area tenures tend to be given to smaller operators such as the majority of Yukon's sawmilling firms, who have smaller capital investments and require smaller quantities of productive forest resources. These tenures usually grant fewer property rights over a duration of up to 10 years and place less forest management responsibility on the resource user. The Crown often either assumes control of forest management and charges the operator, or the two parties share the duties of forest management.

Finally, in small area tenures the Crown tends to grant permission to applicants to supply discontinuous operations. Under these agreements the applicant is granted the rights to harvest very specific amounts of timber for specific purposes over a very short term, usually less than five years. In these cases, there is no benefit to granting management rights and the Crown retains all the responsibility for forest management.

As one goes through Table 2, this clear pattern does emerge out of the differing names of tenure systems in each jurisdiction; although it is not universal. Both Quebec's Timber Supply Agreements and Manitoba's Forest Management Licences provide for agreements with firms to hold large tenure areas, however, they do not convey significant forest management rights to the resource user. As well, the Alaska process limits the tenure size for resource users and grants only limited forest management responsibilities regardless of the size of the timber supply area.

Every jurisdiction, except Newfoundland's Leased and Licenced Lands, imposes restrictions in their tenure systems to limit the freedom of property holders to transfer their forest rights to other firms. Every jurisdiction requires that some form of government approval be obtained prior to the transfer. Several provinces have delegated those approvals to the field staff, while some retain authority with the responsible Minister.

As well, most jurisdictions, except Manitoba and Ontario place formal restrictions on the resource user preventing the export of logs from the province and some such as B.C., New Brunswick, Quebec, and Nova Scotia restrict pulp chip exports. The Yukon imposes formal restrictions on log exports in its Timber Harvesting Agreements; and is developing a formal policy for restricting exports of logs granted through permits.

Formal tenure arrangements grant forest property holders the right to obtain economic benefit from their holdings. The degree to which the Crown restricts these rights to economic benefits, through methods such as stumpage charges and fees, varies significantly across jurisdictions.

Every jurisdiction imposes some form of stumpage payment or royalty on the timber. The fees for spruce and pine sawlogs in 1986 ranged from \$0.20-\$0.45/m^3 in the Yukon and N.W.T., \$1.05-\$1.19/m^3 in Interior B.C., \$0.42-\$4.88/m^3 on the Prairies, \$1.90-\$2.77/m^3 in Ontario, \$0.43-\$1.57/m^3 in Quebec, \$3.00-\$1.73/m^3 in Atlantic Canada, and \$3.30/m^3 in Alaska.

The stumpage charges on most tenure systems is either based on a fixed schedule or a fixed schedule adjusted for market conditions and location of the timber stands. Only the U.S. Forest Service, British Columbia, and New Brunswick employ a residual value appraisal systems that systematically identifies a stumpage charge on an individual species basis, as the residual value left after accounting for all factors of production including risk and profit[8].

Alaska has a transactional evidence appraisal system that establishes its stumpage fees through simple and direct competitive bidding, with a minimum bid price established based on previous sales, adjusted for speculative bidding and reforestation requirements.

Stumpage charges are generally on a volume basis, in which the stumpage is paid on the amount of wood harvested. Ontario has both area and volume based charges, with certain property holders paying a fixed fee per hectare of productive forest in a license area, and the remaining property holders paying a fee based on the volume of timber harvested. As well, Alberta has negotiated clauses in some forest management agreements to allow licencees to have their timber dues assessed on the basis of the productivity of the land in their area, rather than on the volume harvested. Alaska is the only jurisdiction where the stumpage charges are completely area based, with licensees having to pay for the entire timber supply in advance of harvesting.

The majority of jurisdictions also charge a variety of annual fees in the form of license or ground rents that apply on a per unit basis (e.g. per/km^2). These fees range from \$0.77/km^2 in Newfoundland to \$18.34/km^2 in Alberta, to \$30.70/km^2 in Ontario. In addition to the standard fees, Alberta requires an additional deposit of \$100,000 for firms signing forest management agreements, and imposes a variety of administrative charges on their timber quotas to cover forest management expenses.

As indicated earlier, there are a broad variety of operational stipulations that the Crown usually places on the resource users. Every jurisdiction has established utilization standards to ensure the complete tree is used, and requirements for environmental protection. As well, fire and pest protection tends to be undertaken by the Crown on behalf of all users, however, in several jurisdictions property holders are required to undertake precautionary measures (felling snags, closed seasons, stand-by fire crews, and prescribed fire guidelines), to minimize the risk of fire. In Alaska, Alberta, Ontario, and Quebec, the property owner is required to pay a portion of those protection costs, through user fees.

Requirements for the resource user to undertake reforestation and road building tend to vary across jurisdictions, usually by tenure type. For large-sized tenure arrangements, the resource user becomes responsible for reforestation and road building and, in certain cases, for fire protection. For the medium-sized tenure, the Crown usually assumes responsibility for forest management, road building, and fire protection, but does on occasion demand a user fee for that work. For small-sized tenure, the Crown generally undertakes reforestation and fire protection, with the resource user being responsible for roads.

In Manitoba, Nova Scotia, Ontario, and Newfoundland the province reimburses firms in whole or in part for their investments in reforestation and, in certain cases, for infrastructure. Alaska provides the forest inventory and infrastructure as part of the timber contract and are reimbursed through the bidding process. In the remaining provinces, the provincial government requires the operator to pay the majority of the reforestation costs.

In the Yukon and the N.W.T., the Crown has assumed responsibility for site preparation, except in the case of the Hyland Forest Products Timber Harvesting Agreement. The property holder in the Yukon and N.W.T. is responsible for road building, although the Yukon does have a "Roads to Resources" program that can be accessed to obtain road building funds.

Most forest tenure agreements include some sort of stipulations on further processing in the region. These may range from requiring the holder to construct and or operate a processing plant, to specifying that timber only be used by the holder.

The duration of the tenure ranges from less than one year to perpetuity, and may or may not be renewable. However, most jurisdictions have much shorter tenure terms, and Newfoundland and Nova Scotia, the only remaining regions with very long term tenure arrangements (50 years or more), are moving to phase out these tenure systems. Almost all tenure arrangements have terms ranging from less than one year, to twenty years, any of which may or may not be renewed indefinitely.

The duration of the tenure tends to be directly related to the tenure type. Firms with tenure over large areas tend to obtain tenure terms of 15-20 years, often with options to renew. In some jurisdictions, including British Columbia, Manitoba, Ontario, Quebec, and Nova Scotia, there are special exemptions where the time limits can be extended. Firms with tenure over small sized areas tend to obtain tenure terms that range from 5-10 years, often with the option to first right to secure replacement tenure. And firms with tenure on area tend to provide for terms of 1-5 years and are usually not renewable or replaceable.

British Columbia and New Brunswick, and to a lesser extent Ontario, tend to use a tenure duration called "evergreen". Under this system the duration of the tenure is limited to 15-20 year terms but the resource user can reapply for a renewal without limit to the number of renewals. The provisions of the tenures can be modified at each renewal at the discretion of the government. While this mechanism provides some uncertainty for the resource user regarding conditions at renewal, it is a far more secure form of long term tenure than exists in other jurisdictions. On the other hand, it allows the government

the flexibility to adjust forest management requirements to meet changing conditions.

Most tenure systems restrict the resource users rights to the production of timber and associated forest products, although in Newfoundland the property holder on Timber Leases holds additional rights to minerals and certain water rights. As well, all jurisdictions reserve the right to change the land use or to delete tenures, with or without financial compensation. As indicated, most jurisdictions tend to prefer to assign tenures to parcels of various size, with the size being directly related to the magnitude of the investment and the timber supply needs of the operator.

Assignment of tenure rights can be accomplished in several ways, however, it is usually conducted through a combination of competitive bidding, negotiation, and permit application. The method of tenure assignment generally depends upon the tenure size.

Government tends to use negotiation for large-size tenure arrangements. These projects are large and complex, and there are generally too few interested firms to ensure a competitive bidding environment. Also, government wishes to ensure that the equity and stability criteria are adequately addressed along with the questions of industrial efficiency and royalty levels.

On small-sized tenures, almost all of the jurisdictions tend to establish permit procedures that allow interested parties to make application for these rights on a first-come-first-served basis.

For medium-sized tenures, jurisdictions use a variety of methods to allocate the tenure, including competitive bidding, negotiation, and permit. In Alaska, Alberta, British Columbia, and Nova Scotia, the Crown delineates certain forest areas for smaller operators and auctions these lands to the highest bidders. The successful bidders sign contracts agreeing to meet the various terms and conditions that have been established by the government.

In the remaining jurisdictions, the government establishes an application process for acquiring timber rights. In some forest areas, and for certain uses, governments will negotiate a forest licence to harvest some timber volumes. In other areas, or for certain uses, the jurisdiction will simply grant a permit or license. Most sawlog licences are negotiated in these regions, while fuelwood harvesting is allocated by permit.

While the negotiation and permit systems guarantee flexibility of government action, many foresters and forest economists prefer to have a substantial portion of the timber in any region allocated by some form of competitive bidding. Competitive bidding reveals the true value of the timber in each region, provides a degree of flexibility to the structure of the forest industry, and ensures that the public's resource is sold for a fair price.

While public input and multiple-use criteria are considered key elements of proper forest management by most jurisdictions, few of them have instituted formal systems for accommodating that criteria. Alaska and Alberta have the most comprehensive mechanisms for establishing forest management parameters. Forest lands are defined in conjunction with land-use planning principles and after taking into account the requirements of alternate uses of the forests. Quebec, Newfoundland, and Saskatchewan take into account some aspects of competing land uses, while the remaining jurisdictions attempt to accommodate other uses through specific negotiations or departmental policy.

Alberta and B.C. require public hearings on proposals by individuals to obtain large tenure arrangements. Other jurisdictions tend to negotiate agreements directly with the individual requesting the property rights.

3.3 Implications of tenure arrangements for the Yukon

From the description and analysis of forest tenure systems presented, two distinct patterns are emerging. First, despite the 45 different tenure types shown in Table 2, there are really three major types of forest tenure, and second, the approach to forest tenure is clearly driven by the forest management goals. These results indicate that the job of determining an appropriate tenure system for Yukon may not be as difficult as one might believe, and they reinforce the pressing need of governments in the Yukon to create a clear set of forest management goals.

The entire menagerie can be reduced to three forms of tenure, namely: forest management agreements, forest licenses, and timber permits. The forest management agreements tend to be negotiated agreements between the Crown and large resource users. The agreements require the licensees to make significant investments in the forests and to undertake extensive forest management activities. In exchange, they receive secure long-term rights to raw material for their manufacturing operations in specific areas that are free of competition and largely under their own operational control. This process allows the Crown to obtain the benefits of private industry's resources and efficiency, while retaining ultimate ownership and control.

The use of evergreen provisions for renewal of these types of arrangements, combined with stumpage fees that vary according to the productivity of the forest lands, appears to be the most effective means of providing strong incentives for intensive forest management, while ensuring reasonable revenues for government.

Forest licenses are provided to smaller producers who require assured access to sufficient timber supplies but do not have the financial resources or background to undertake the complete range of forest management required by the Crown. These firms are allocated sufficient timber to meet their needs for 5-10 years and are required to meet established utilization standards and environmental protection requirements. The Crown undertakes to conduct the reforestation and fire protection and in exchange the property holder pays stumpage fees and/or other user fees.

Forest licenses allow smaller firms, communities, or individuals who have limited resources the right of access to the forest resource, without the costly burden of complete forest management. The Crown assumes the role of resource manager and imposes charges on the property holder as an incentive for them to limit their abuse of the management guidelines.

The allocation of forest license rights through competitive bidding arrangements, as carried out in Alaska, helps to ensure that the rights go to those who can make the most valuable use. As well, if a significant portion of the forest in each region is granted through forest licenses, it can act as a mechanism for adjusting the stumpage fees on the Forest Management Agreements to reflect the current market conditions. These licenses can be allocated for both commercial fuelwood and commercial timber.

The timber permit is established to meet site specific requirements of the Crown or individuals. These permits are usually provided to individuals or communities who need access to the resource for personal use or community use. As well, the permits are granted to meet specific forest management requirements such as clearing of agricultural land, removing insect infestations, or fire breaks.

These permits provide very short terms to meet specific requirements, and the Crown is fully responsible for forest management. Usually, the time and costs of enforcing these permits do not justify imposing any form of fee or charge other than the shipping charge. The areas provided under timber permits can also be allocated by competitive bidding, but usually they involve such as small proportion of the land base, it is not cost effective and, consequently, they are more often granted on a first-come first-serve basis.

Comparing the results in Tables 1 and 2, the effects of forest management goals on the type of tenure can easily be seen. Jurisdictions that place very high priority on stability criteria tend to favor more direct government intervention in forest management, encourage negotiation of tenure, place less emphasis on renewable tenure arrangements, impose more processing and use restrictions, and are tighter in their control of transferability. These jurisdictions wish to ensure that the forest resource base is available for future generations and maintain that the Crown, as owner, must ensure this occurs. Manitoba and Quebec appear to be major examples of this strong stability orientation.

Jurisdictions that place very high priority on equity criteria, tend to establish strong use-restrictions, establish land-use planning and public participation processes as a condition of tenure, and impose stronger operating restrictions on activities such as reforestation, road building, and protection. These jurisdictions also grant more tenures on small and medium areas, more often impose a competitive bidding system, and have processing restrictions. Alaska and New Brunswick are the prime examples of jurisdictions that place very strong emphasis on equity criteria in their tenure systems.

Jurisdictions that place very high priority on efficiency criteria tend to grant a larger proportion of large area tenures to major corporations who are encouraged through negotiation, rather than competitive bidding, to pursue efficient forest management in exchange for long term tenure arrangements. These jurisdictions place less emphasis on use restrictions and impose fewer operational controls. However, they often initiate stronger reporting and monitoring systems. Processing restrictions, if any, are negotiated as part of the tenure arrangements and firms are subject to substantially less intervention in areas of land use planning and multiple use. Newfoundland, and until recently, Nova Scotia, consider efficiency their prime management objective.

Finally, there are jurisdictions, such as British Columbia, and to a lesser extent Alberta and Saskatchewan, who attempt to simultaneously achieve all three types of management goals - efficiency, equity, and stability. This requires governments to pursue a more complex arrangement of tenures, attempting to strike a balance between the often conflicting goals.[9] In these jurisdictions, there is an array of different tenure systems intended to meet specific regional needs, complete with a further array of terms and conditions specific to each requirement.

The problem is likely best summed up in these words by Dr. Peter H. Pearse, who stated "B.C.s Tree Farm License (TFL) system is the most successful and sophisticated forest tenure system in North America. The best managed forests are in TFLs. But they pose a dilemma for government. On the one hand, forest companies want a tenure system that gives them 100 per cent security. They want assurances that if they make large capital investments they will reap the benefits.

On the other hand, the public, which owns the resource, sees TFL's as a giveaway to big companies. TFL's are issued without competition for long terms.

They are renewed without competition. And the timber is sold to the licensee at non-competitive stumpage rates" [10].

In Alberta and Saskatchewan, the smaller size of the forest resource and its less prominent contribution to the economy have allowed governments to establish a more standardized process for granting tenure. The opposite is the case in British Columbia and the Maritimes where the value of the industry and its historical development have resulted in a more complex pattern of tenure allocation. On the other hand, if one wishes to examine some of the most sophisticated tenure systems in the world, one need look no further than Western Canada.

Forest management goals are important to providing the direction required to modify the basic three-tiered tenure system so that it meets the special requirements of the Yukon.

4.0 A forest tenure system for the Yukon

The foregoing review of the major elements that comprise forest tenure systems in Canada and Alaska, clearly points to the difficulty that may be encountered in attempting to achieve an optimum forest tenure system that would provide the incentives for the private sector to efficiently manage the resource, while keeping ownership in the hands of the Crown.

Haley and Luckert (1986) developed an analytical framework that involved examining the social costs of public and private control over each of the major tenure dimensions and choosing that public-private mix that minimized total social costs [11]. While conceptually simple, there are very serious difficulties with practical implementation, due to the difficulties in determining and measuring social costs and benefits effectively.

As such, Yukon will have to take a more qualitative approach to it's tenure systems, attempting to strike the proper balance between the various elements of efficiency, equity, and stability and knowing that the systems must adjust to changing conditions.

In this section, as a background, there will be a short review of the forest tenure systems in the Yukon. As well, there is a discussion of three possible alternative tenure systems that might be established in the Yukon. These alternatives include: the status quo, timber contracts, and the three-tiered tenure system[12].

4.1 The Yukon tenure system

The Dominion Lands Act of 1872 was the first piece of legislation in the Yukon to deal with forest resource allocation. The Act established a tenure system consisting of two types of tenure, namely timber berths and timber permits.

The Timber Berth was an annual, renewable licence, which granted the authority to cut and remove timber according to the terms of the licence within the area of the berth. It was intended to accommodate industrial enterprises and was awarded by public competition. A berth measured less than 25 square miles unless it was to be used for cutting pulpwood, in which case the Governor-in-Council was to determine the appropriate size.

A 1901 Order-in-Council specified that one person or company could not hold more than five berths of five square miles each and required that a licencee have a sawmill in operation at least six months a year.

Timber permits issued under the Dominion Lands Act authorized settlers to cut timber for building purposes and fuelwood. Prospectors, miners, and steamboat owners could cut firewood for their own use. Local governments and others could cut timber for construction and other materials for public works, such as railroads, churches, and schools, and small commercial operations could produce cordwood and pulpwood for sale.

These tenure arrangements provided modest stumpage fees, included virtually no forest management restrictions, and were easily transferable between users.

In 1906 there were 141 timber berths in the Yukon covering 705 square miles, and despite the fact that no new timber berths were granted after that year, it took almost 70 years before the last timber berth disappeared. Timber berths were never granted for pulpwood.

The Yukon Quartz Mining Act also allowed mining firms to harvest timber on their mineral claims as long as the timber was used for personal use. Several hundred thousand cubic metres of timber has been harvested in this manner over the years and much of the lumber in the Klondike in the early 1900's came from mineral claims, although commercial sales were illegal.

Passage of the Territorial Lands Act of 1950 eliminated the berth and permit systems. Section 13 of the Act required any person wishing to harvest timber to have a timber cutting permit, while Section 14 made provision for regulations to be established governing the harvesting.

The Yukon Timber Regulations, issued pursuant to Section 14, provided for the creation of a permit system, which prescribes the terms and conditions under which the

timber can be cut, including the location and species of timber to be cut, the volume to be harvested, and the amount of stumpage fees to be paid. The regulations allow any company or individual over the age of eighteen to obtain a permit "for the cutting and removal from territorial lands of timber in an estimated annual volume not exceeding fifteen thousand cubic metres"[14]. Timber cutting permits are also granted to commercial fuelwood operators to harvest fuelwood and to individuals to harvest fuelwood or timber for personal use.

The timber cutting permit grants a one-year authority to individuals or firms to cut a specified amount of timber. This is an insufficient time frame to encourage firms to invest in new capital or to obtain working capital loans from the banks. The permits are granted on application rather than by competition, contain no provisions for resource utilization, waste removal or harvesting, provide no requirements for site preparation, reforestation or silviculture application, and contain no provisions requiring firms to maintain a mill or process the logs in the Yukon. Resource users must, however, provide for their own roads and other forest harvesting infrastructure.

In recent years, the Forest Resources Division in the Yukon has set aside commercial and private fuelwood cutting areas in some communities in order to assist the orderly harvesting of burned over areas. Also, a few long-term forest operators have received commitments from the Department of Indian and Northern Affairs (DIAND) to set aside a five-year timber supply for their use, subject to obtaining the necessary permits each year and meeting certain minimum forest management requirements.

MacTavish and Dendron Resource Surveys Ltd. (1982) undertook a major evaluation of DIAND's forest management program and concluded that the mandate of Sections 13 and 14 established a severely limited tenure system that could not provide a strong base for forest management. Controls over forest management were constrained by the fact that the Crown had "no regulations respecting several essential elements of timber harvesting management, including allocation of timber rights, disposal of timber by competitive means, logging plans, timber utilization standards or penalties for infractions"[13].

MacTavish also went on to conclude that there were no methods to adequately deal with reforestation, silviculture, research, or for the allocation of timber rights that would encourage industry investment in modern plants and equipment.

In addition to Timber Cutting Permits, the Territorial Lands Act provided for the federal government to negotiate Timber Harvesting Agreements. Section 4 allows the Crown to enter into long-term timber harvesting agreements, similar to forest management agreements in the provinces. Under a timber harvesting agreement,the Crown agrees to grant long-term tenure to the resource user, who in exchange agrees to meet essential forest management requirements such as logging operations planning, forest inventories, silviculture measures, harvest requirements, utilization standards, and basic environmental considerations such as slash disposal and fire control.

There have been several timber harvesting agreements signed since the fifties. In the mid-seventies there were five such timber harvesting agreements in effect, with firms producing about 3-5 million fbm annually. Today, there is only one agreement in effect and it is held by a firm producing about 15 million fbm annually.

The agreements generally provide for ten-year terms and contain provisions for renewal. This gives a resource user an assured timber supply and is essential if firms are to be encouraged to invest in modern plants and become stable employers in the community. Stumpage rates charged under the existing timber harvesting agreement is considerably higher than those contained in the timber regulations. The agreement also makes provision for the resource user to take on several forest management responsibilities mentioned above,that are not provided for in the timber regulations. A comparison of the timber harvesting agreement with similar timber disposal methods in B.C. and Alberta (Table 2) indicate that they are almost identical, with the exception that the provincial governments assign cutting rights based on an Annual Allowable Cut (AC) while the Yukon Timber Harvesting Agreement sets a limit based upon the best available knowledge of the timber supply in the region.

MacTavish and Dendron Resource Surveys Ltd. (1982) reported that the timber harvesting agreements overcame the serious deficiencies created by sections 13 and 14 of the Territorial Lands Act and urged the Crown to expand the concept to the larger commercial operators, which at that time were ones producing over 500 thousand fbm annually[14]. He also indicated that DIAND should not feel constrained to limiting the agreements to the very large firms like Yukon Forest Products (aka Hyland Forest Products); but should consider expanding the process to smaller operators.

In addition to federal lands, the Yukon government controls 0.2 percent of the territory's forest resource base around Yukon communities (Comissioner's Lands). These forests are covered by the Yukon Lands Act, under which the territorial government grants timber permits to applicants. The annual permits grant individuals and firms the right to harvest limited amounts of timber from Comissioner's Lands. As with timber cutting permits, the Yukon Timber Permits provide only modest requirements on re-

source users to undertake forest management activities. There are some requirements for slash removal, environmental protection, and harvesting, but there are not specific requirements for logging plans, utilization standards, reforestation, or silviculture. The stumpage fees on Comissioner's Lands for sawlogs are higher than on federal lands, about $0.65/m³ versus $0.20/m³ on federal lands.

In summary, the tenure system on federal lands in the Yukon appears to be far from ideal. On the one hand, the predominante method for assigning property rights is the timber cutting permit. This tenure grants the resource user very limited harvesting rights, no certainty of continued tenure, a volume based stumpage system, and limited transferability. Hence, there is virtually no incentive for forest firms to improve efficiency or to invest in forest management. Moreover, the timber cutting permits provide the Crown with virtually no capacity to ensure that the resource user assumes some responsibility for forest management or to impose many basic forest management practices.

On the other hand, there is only one firm covered by the much superior timber harvesting agreement, in which the resource user receives assured longer term tenure in exchange for meeting specific forest management requirements. These agreements have the potential to improve forest management in the territory, but presently receive little use.

4.2 Possible alternative tenure systems

There are three alternative forest tenures that could be followed in the Yukon in order to grant property rights to forest resource users. Governments could follow the status quo, they could establish a timber contract system, or they could move to a three-tiered tenure system, similar to that existing in the Prairie provinces.

4.2.1 Status quo

The status quo would continue the present practise of granting timber cutting permits and timber harvesting agreements. While it is not likely to be preferred to a more sophisticated system, it may have some interim application.

The timber harvesting agreement such as the Hyland Forest Products Agreement is considered a good mechanism for controlling forest development for larger firms and can be used as a model for other similar projects.

Timber cutting permits meet the existing requirements of commercial operators and residents who wish to harvest fuelwood and/or small quantities of sawlogs for personal use. Timber cutting permits could, therefore, continue to be granted to these individuals on a first-come-first-serve basis. One problem exists with the smaller long-term operators who produce from 100 thousand fbm-1million fbm annually and are only covered by the timber cutting permit, which for the reasons explained above, is inadequate.

In order to provide improved tenure arrangements under the existing legislation the federal government could develop standard timber harvesting agreements. These standard timber harvesting agreements would be authorized under Section 4 of the Territorial Lands Act and would create a mechanism for granting longer-term tenure for most sawmill firms in the Yukon.

Two or three categories could be developed with the large firms such as Hyland Forest Products signing a comprehensive timber harvesting agreement similar to forest management agreements in Alberta or TFLs in B.C. Smaller producers would sign less comprehensive standard timber harvesting agreements, with the contents of these standard contracts being modelled on the timber quota certificates or term cutting agreements negotiated on the Prairies.

The process to develop these standard timber harvesting agreements could be quite straightforward. The basic contents of these standard contracts would be patterned on existing mechanisms being used in the provinces. Any concerns specific to a particular operator could be accommodated in the standard contract through negotiation. The standard contracts could be routed through public discussion and, if necessary, could receive federal cabinet approval. Once there is agreement on the contents of the standard contracts, officials could then negotiate timber harvesting agreements for all sawmill operators, producing more than 100 thousand fbm annually. The negotiated agreements would then be processed to receive the required Orders-in-Council.

The process of preparing, negotiating and processing these new timber harvesting agreements could take several months, but this alternative appears to be a viable method of granting longer-term tenure prior to the transfer of forest management responsibility from Ottawa to Yukon. Extending the timber harvesting agreement provisions to almost all sawmills will enhance their security and access to timber supplies, and will increase the opportunity for firms to obtain financial assistance for upgrading facilities. The federal government will be able to use existing legislation, and through the new standard contracts to begin enhancing forest management practises.

During the Yukon 2000 Conferences and meetings, and in other public forums, the Yukon forest industry and other forest users were anxious for government to develop a better alternative for dealing with the important question

of granting property rights to resource users. This mechanism would be a possible interim solution.

There are disadvantages to this approach. In addition to the time it would take to develop the new standard contract, the use of generic contracts for several operators would reduce flexibility and there could be concerns respecting the transferability of these contracts to any new forest management legislation. Finally, while it would enhance control over the essentials of forest management, it would not deal with the need for competitive bidding on forest lands.

4.2.2 Timber sales contracts

The second alternative is to develop a form of direct timber sales contract. The contracts could be developed as part of a legislated process similar to Alaska's commercial timber sales.

Under the Alaska system, timber would be sold to commercial concerns under a legal contract, with the selling price of the contract (stumpage) being determined by auction, or in special circumstances where there is only one bid, by negotiation. Among the terms specified in the contract would be the amount, type, location, and quality of timber to be harvested, the use and maintenance of existing roads, restrictions in times and methods of harvest, and any special requirements for logging methods, scarification, or environmental protection.

Governments could choose whether to follow the Alaskan process, where the state pays the initial costs of the sales administration (site specific forest inventory, sale layout, timber cruising, map preparation, sales costs, inspections), road construction, silviculture, and reforestation, and is reimbursed for those charges through the bidding process. The size of the tenure area can be adjusted according to the needs of the interested property holders, as can the conditions in the contract.

This type of mechanism seems well suited for areas where there are several operators available to compete for the forest land. As well, it gives the Crown the flexibility to choose the prospective sites to be harvested, ensure that basic multiple use and environmental concerns are accommodated, establish the best regional infrastructure base, and undertake the required reforestation and silviculture necessary to protect the environment.

Moreover, the stumpage fees are paid on the basis of a fixed sum for timber on the entire contract area which provides an incentive for forest firms to make the best use of available timber rather than simply high grading the best materials. Finally, the competitive bidding system provides the Crown its full economic rent as well as covering the costs of forest resource management.

The criticisms of the Alaskan system are directed largely to concerns about administration and tenure costs. The competitive bidding process could be compromised if there were insufficient firms bidding on resources in certain areas. A single resource user or monopsonist could obtain resources at too low a price.

Repelto (1988) concluded that all national forests in Alaska consistently lost money on timber sales, due in large part to the fact that over 40% of the sales had only one bidder. Noncompetitive bidding based on appraisal values well below market values, he states, contributes to Forest Service losses, but also under-estimates the net economic benefits of timber operations.

The tenure areas in Alaska are often considered to be too small to allow firms to make the capital investments required to operate efficiently, while the short duration of the contracts reduces the investment incentive by limiting the time frame for the private sector to earn a reasonable return on its new investment. Bankers have been reluctant to provide funds for new equipment on the basis of the short-term smaller-sized timber contracts in Alaska. The Alaska system forces operators to pay stumpage fees in one lump-sum up-front payment, thereby increasing their immediate cash flow needs and giving competitors an advantage, while their competitors in Canada can pay out the stumpage as they produce timber or undertake the silviculture treatment. Some also feel that by providing infrastructure in advance, the government may be incurring an unnecessary fixed cost on the forest operator.

The Alaska system of competitive timber sales contracts appears to work well in the United States and is generally supported by officials and operators. To implement such a system in the Yukon would require new forest legislation, that is likely to occur only after the responsibility for forest resources is transferred from Ottawa to the Yukon.

4.2.3 The three-tiered tenure system

As discussed earlier, there is a definite trend in recent years for most jurisdictions in Canada to move to a three-tiered tenure system. There are negotiated large area tenure agreements with major firms, that exchange long-term exclusive use for private sector responsibility for forest management. There are competitively-bid medium-area tenure agreements or contracts that grant smaller firms the rights to harvest commercial timber in exchange for fees and other payments that the Crown subsequently uses to finance, or at least partially finance, forest management activities. Finally, there are small-area tenure permits that grant individuals the rights to harvest small amounts of timber or fuelwood for very limited and specific commercial or personal reasons. The small owner is granted few rights except the right to harvest, and

the Crown assumes all the responsibility for forest management.

As discussed earlier, this system combines the flexibility to tailor an agreement based on the firm's needs, size, investment level, and ability to assume responsibility for forest management. Moreover, the Crown can request that proposals be submitted for larger parcels as is done in Western Canada and thus create an initial competitive bidding situation. The Crown allows the larger firms more freedom to conduct forest management, but requires them to pay for that management and sets royalties and other fees accordingly.

For the medium-sized firms, the government undertakes a competitive bidding process which helps to determine the appropriate value of the resource. As with the Alaska system, the Crown undertakes the forest management, but unlike the Alaska system, the operator pays for the forest management, through user fees, as the forest harvesting occurs. This encourages the resource user to be more careful with harvesting. This system can apply to both commercial fuelwood and commercial sawlog operators.

For the small firms or individuals, the Crown provides a very straight-forward process that allows these people limited access to the resource, without any forest management responsibility. This simpler system is less costly for government than timber sales contracts or other forms of agreements.

The three-tiered system, of course, may have its problems. As outlined earlier in the paper, once a firm has access to long-term tenure through a forest management agreement, the competitive basis for determining fair rents that should go to the Crown are lost. As well, if most of the timber is allocated this way, there is the potential for substantial concentration of ownership in the hands of a few firms or individuals. Moreover, there is only limited action government can take if the resource user fails to undertake the required forest management or initiates activities that impinge on other resource users.

To over-come this problem, the evergreen clause has been introduced in a few provinces. This evergreen clause allows a property holder who is performing satisfactorily to obtain perpetual rights to a specific area, but gives the Crown the right, every five years, to renegotiate the terms of the agreement, and to force property holders who are not performing, to relinquish their rights.

For the smaller property holders there have been no specific concerns, except to ensure that permits be separated for fuelwood and sawlogs and that specific areas be established. They also wish to see harvesting rights allocated and administered more efficiently and assurance that government install the infrastructure to assist with future management of these areas.

For medium-sized property holders, the forest license mechanism provides a process for acquiring longer-term tenure, but the usual 2-5 year terms are often considered to be too short. Most medium-sized operators want longer-term tenure, but are prepared to accept the shorter terms if they have the rights to harvest for a minimum of 5 years and have access to replacement timber in the area after that time.

Many medium-sized property holders also are concerned with the user fees imposed on them for forest management, as they are seen as added financial burdens in a competitive environment. However, these costs are possibly less than if the property holder undertook the management work themselves, as government can take advantage of economies of larger scale operations.

5.0 Conclusion

The Yukon and Federal governments have the task of considering and deciding what forest management goals and objectives they wish to pursue. They will also need to evaluate tenure systems and identify an appropriate one for allocating property rights in accordance with those goals and objectives. The forest industry, Indians, and other forest resource users are becoming more concerned about the present form of property rights allocation and are pressuring government for changes in the process that will both improve forest management and assist industry growth and development.

At present, governments might seriously consider using the status quo to advantage, by developing standardized timber harvesting agreements that could be used to grant longer-term tenure to smaller forest operators as well as large firms such as Hyland Forest Products. The legislative structure is in place to allow these changes, but there is a need to develop the standardized form, obtain federal approval, and develop a process for fast-tracking the Orders-in-Council for each operator. This, in turn, would require a commitment from DIAND (Yukon and Ottawa) officials, support of the Yukon Government, and agreement by the Indians, industry, and other forest resource users prior to proceeding with the plan.

As an alternative to standardizing timber harvesting agreements, governments should consider developing timber sales contracts that grant timber rights to firms in exchange for compliance with basic forest management requirements. Various incentives and penalties could be used to ensure compliance. This process could formalize the present management practices at DIAND (White-

horse), provide an immediate framework for granting longer-term tenure, and allow the Crown to get some control over forest management.

The Yukon and federal governments should begin immediately to develop the forest policy framework that will establish the required goals and objectives upon which the forest tenure system can be based, and also begin work to define the appropriate tenure system to meet those goals. The information in Table 2 suggests that the problem of defining appropriate property rights may be less difficult than the many tenure elements would lead one to believe.

Moreover, the system that is adopted will have to accommodate new forms of forest property rights such as Indian land claim agreements. To do this, it must accommodate a tripartite management arrangement between the government, the Indian people, and the resource user.

Footnotes

1. For a more complete discussion of background to property rights in Canada, see Pearse (1987b).

2. Haley and Luckert (1986:14). The authors indicated that there is a common misperception that "common property" can be freely exploited by everyone, while "fee simple" title allows a private person unfettered individual control. In reality, property rights of all types are held by individuals, groups and governments and control by government does not automatically mean that the resource is a common property. Forest lands are not a common property providing free access to all. The property rights to such land are firmly vested in the Crown. Governments who are the land owners, have the right to use the land, exclude others from using it and dispose of the property rights in any way they see fit. When sufficient rights have been transferred to an asset to make it "private property" is a moot question.

3. Ibid, p. 23. Efficiency policies are those which promote the goals of increasing real economic growth and per capita incomes within a jurisdiction. In forest policy these goals are usually described in terms of promoting an efficient forest products industry and maximizing net revenues from the forest resource. Equity policies are usually involved in distributing the wealth obtained from economic growth throughout the society in the interests of fairness and justice. For forest policy, this equity is seen as concern over sustaining a forest resource for future generations, provision for the multiple use of the forests' resources and ensuring that all competing user groups are fairly treated by the process. Stability policies usually entail developing methods to bring long term stability to communities and regions. For forest policy, this is demonstrated through sustained yield policies which are intended to provide a steady supply of trees for harvesting and in policies which stress the maximum utilization of each tree harvested.

4. Yukon Department of Renewable Resources (1985:25)

5. McTavish Dendron Resource Surveys Ltd. (1982). Executive Summary, p.5.

6. In order to obtain more detail on the characteristics of forest tenure, readers are encouraged to read the research materials noted in the text and elaborated upon in the biblography. The work by Haley and Luckert (1986) and Pearse (1976) are probably the two best discussions of forest tenure, while Rawat(1985) provides a good analysis of the effects of government forest tenure systems upon efficient forest management.

7. Comparative research on forest tenure systems has been limited over the years as provincial governments have tended to concentrate on implementing their own forest managment systems. However, in the past two years there have been a select number of studies carried on at the University of British Columbia and the University of Toronto that have reviewed tenure systems and their impact on business investment in the forest sector. Haley and Luckert (1986) is the most recent and most comprehensive evaluation of forest tenure and should be referred to if readers are interested in obtaining more specific information on tenure systems across the country.

8. The basic procedure is to start with an end-product price and from it subtract the costs that the average efficent operator would incur in harvesting. The residual value that remains is the price of the standing timber and is charged as the stumpage fee. For more information on this see Percy (1986) pp.86-90, and Grenier (1982) pp. 90-108.

9. The three forest policy goals-efficiency, equity, and stability are, to a great extent, non-complementary. For example, in order to pursue more equitable income levels amongst all regions of a jurisdiction, you usually must accept a lower real per capita level of income for all residents. Or, in order to ensure that the wishes of alternate users are taken into account, you often must exclude very productive forest lands

from harvesting (eg. Lyle Island). Or, to ensure equitable access to forest lands through competitive bidding, it often results in insufficient forest area to sustain efficient forest operations (eg. Alaska interior forests). To simultaneously pursue all three goals the Crown must establish a complex forest management system that hopes to strike a balance between the often conflicting elements. Such activities are often very difficult to achieve.

10. Pearse (1987a:14).

11. Haley and Luckert (1986:30 - 34).

12. Three alternatives were chosen because many planners believe that every decision comes down to three basic options, with the remaining alternatives being simple combinations of the three alternatives.

13. MacTavish Dendron Resource Surveys Ltd. (1982). Executive Summary p.3.

14. Ibid, Executive Summary p.4.

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TABLE 1. Forest Policy Objectives Across Canada and in Alaska

Policy objectives								
	Efficiency			Equity		Stability	Other	
Province	Maximize resource revenues	Encourage industrial efficiency	Encourage Efficient forest management	Multiple use	Protection and conservation of resource	Sustained yield	Full utilization of resource	Additional Objectives
British Columbia	x	x		x	x	x	x	Obtain full value for government. Maximize productivity of forest land.
Alberta	x	x			x	x	x	Encourage establishment and continuity of manufacturing plants. Maintain size and diversity among firms in the forest products industry.
Saskatchewan				x		x		
Manitoba	x		x			x	x	Develop remote areas.
Ontario						x		Retain forest land in public ownership.
Quebec				x	x	x	x	Efficient timber allocation to industry.
New Brunswick	x		x			x		Coordinate Crown and private forest management.
Nova Scotia		x		x	x	x		Acquire forest land to consolidate Crown holdings. Encourage private owners to participate in a provincial sustained yield wood supply strategy.
Prince Edward Island				x	x			Increase species diversification woodland by reintroducing indigenous species.
Newfoundland			x		x	x		
NWT				x	x		x	
Yukon				x	x	x	x	
Alaska	x			x	x			

TABLE 2. Forest tenure characteristics across Canada and in Alaska

Tenures / Characteristics	Comprehensiveness and exclusiveness	Transferability	Right of holder to benefits	Operational stipulations	Duration (term)	Use restrictions	Size specification	Allotment type	Allotment method	Public input
I. British Columbia										
a) Tree Farm Licence	X	X	X	X	X	X	X	X	X	X
b) Forest Licence	X	X	X	X	X	X	X	X	X	X
c) Major Timber Sale Licence	X	X	X	X	X	X	X	X	X	X
d) Minor Timber Sale Licence	X	X	X	X	X	X	X	X	X	X
e) Timber Licence	X	X	X	X	X	X	X	X	X	X
f) Pulpwood Agreement	N.A.	X	X	X	X	X	X	X	X	X
g) Woodlot Licence	X	X	X	X	X	X	X	X	X	X
h) Miscellaneous Permits	X	X	variable	X	X	X	X	X	X	X
II. Alberta										
a) Forest Management Agreement	X	X	X	X	X	X	X	X	X	X
b) Timber Quota Certificate	X	X	X	X	X	X	X	X	X	X
c) Miscellaneous Permits	X	X	variable	X	X	X	X	X	X	X
III. Saskatchewan										
a) Forest Management Licence Agreement	X	X	X	X	X	X	X	X	X	X
b) Term Cutting Agreement	X	X	X	X	X	X	X	X	X	X
c) Timber Permit	N.A.	X	X	X	X	X	X	X	X	X
d) Timber Sales	N.A.	X	X	X	X	X	X	X	X	X
IV. Manitoba										
a) Forest Management Licence	X	X	X	R	variable	X	X	variable	X	X
b) Timber Sale Agreement	X	X	X	X	X	X	X	X	X	X
c) Timber permit	X	X	X	X	X	X	X	X	X	X

(TABLE 2. continued) Forest tenure characteristics across Canada and in Alaska

Characteristics / Tenures	Comprehensiveness and exclusiveness			Transferability				Right of holder to benefits				Operational stipulations					Duration (term)					Use restrictions	Size specification				Allotment type		Allotment method			Public input		
	Exclusive timber harvesting and management	Exclusive timber harvesting and modest management	Exclusive timber harvesting only	Tenure transferable with consent	Tenure freely transferable	Unprocessed timber export restrictions — provincial and federal	Unprocessed timber export restrictions — federal only	Stumpage is selling price linked	Stumpage is a fixed schedule	Holding or rent charge	Protection and/or management charge	Reforestation responsibilities	Protection responsibilities	Road building responsibilities	Operation of a processing plant	Utilization requirements and/or environmental protection requirements	Less than or equal to five years	Less than or equal to fifteen years	More than fifteen years	Evergreen	Removable or replaceable	Government may change uses in the public interest	Large	Medium	Small	Divisible	Area allotment	Volume allotment	Competitive tender	Negotiated agreement	Licence or permit	Public hearings	Public notices	Land use planning process
V. Ontario																																	
a) Forest Management Agreement	X			X			X	X		X	X	R		R	X	X			X	X		X	X			X			X				
b) Order-in-Council Licence		X		X			X	X		X	X			X	X	X	variable				X	X	X	X	X	X				X			
c) Miscellaneous Licences			X	X			X		variable						V	X	X				X	X			X	X				X			
VI. Quebec																																	
a) Timber Supply Agreement			X	X		X		X			X		X	R	X	X	variable				X	X	X	X	X		X		X		X		X
b) Timber Limit	X			X		X		X		X	X	X	X	R	X	X			X			X	X			X			X	X			
c) Miscellaneous Permits			X	X		X			variable							X	X				X	X					X			X			
VII. New Brunswick																																	
a) Crown Timber Licence	X			X		X		X				X		X	X	X			X	X		X	X			X			X				
b) Sub-Licence			X	X		X		X							X	X	X			X		X		X			X		X				
c) Timber Permit			X	X		X			X							X	X			X		X			X		X			X			
VIII. Nova Scotia																																	
a) Long Term Lease	X			X		X		X				R		X	X	X			X	variable		X	X			X			X	X			
b) Utilization Agreement		X		X		X		X						X	X	X		X			X	X		X			X		X				
c) Short Term Licence			X	X		X			X							X	X				X	X			X		X	X					
IX. Prince Edward Island																																	
a) Timber Permit			X		unknown			X						X		X	X				X				X		X			X			
X. Newfoundland																																	
a) Leased and Licenced Lands	X				X	X			X	X		R	R	X	X	X			X		V	X	X				X			X			X
b) Short Term Timber Licence		X		X		X		X				R	R	X	X	X			X		X	X		X			X			X			X
c) Timber Permit			X	X		X		X								X	X			X	X	X			X		X			X			X
d) Coastal Fishermen's Limit		N.A.		N.A.		X			none							X			X	N.A.	X			N.A.			both			X			X

N.A. = Not applicable R = partial or full reimbursement

(TABLE 2. continued) Forest tenure characteristics across Canada and in Alaska

Tenures	Characteristics	Comprehensiveness and exclusiveness	Transferability	Right of holder to benefits	Operational stipulations	Duration (term)	Use restrictions	Size specification	Allotment type	Allotment method	Public input
XI. NWT											
a) Forest Management Agreement	Exclusive timber harvesting and management										
b) Timber Licences	Exclusive timber harvesting and modest management	X	X		X						
c) Timber Permit	Exclusive timber harvesting only	X X		X X	X X X	X X	X	X	X X	X X	X
XII. Yukon											
a) Timber Management Agreement	Tenure transferable with consent	X	X								
b) Timber Permit	Tenure freely transferable										
c) Miscellaneous Permits	Unprocessed timber export restrictions — provincial and federal	X	X X	X X X	X X X	X X	X	X	X X	X X	X
	Unprocessed timber export restrictions — federal only		X X	X X X	X X X	X X	X	X X	X X X	X X	X X
XIII. Alaska											
a) Commercial Timber Sales	Stumpage is selling price linked	X		X					X		
b) Personal fuelwood	Stumpage is a fixed schedule			X X X	X X X	X X	X X	X X	X X X	X X	X X
c) Personal houselogs	Holding or rent charge		X								
	Protection and/or management charge										
	Reforestation responsibilities										
	Protection responsibilities										
	Road building responsibilities			X X X	X X X	X X	X X	X X	X X X	X X	X X
	Operation of a processing plant		X		X	X		X			
	Utilization requirements and/or environmental protection requirements	X									
	Less than or equal to five years	X X X		X X	X X	X X	X X	X X	X X X	X X	X X
	Less than or equal to fifteen years		X			X					
	More than fifteen years										
	Evergreen										
	Removable or replaceable										
	Government may change uses in the public interest	X X X	X X X	X X X	X X X	X X	X X X	X X X	X X X	X X	X X X
	Large										
	Medium		X			X		X			
	Small	X X X							X		
	Divisible		X X	X X	X X	X X	X X	X X	X X	X X	X X
	Area allotment	X							X		
	Volume allotment	X X		X X X	X X X	X X	X X	X X	X X X	X X	X X
	Competitive tender	X								X	
	Negotiated agreement		X			X		X			
	Licence or permit	X X		X X	X X	X X	X X	X X	X X X	X X	X X
	Public hearings										
	Public notices	X X X				X		X			
	Land use planning process	X X X			X						

N.A. = Not applicable R = partial or full reimbursement